

CLAIMS

1. Process for the preparation of a functionalized polymer characterized in that
- 5 a. a first compound, containing at least a primary amino group and at least a group chosen from a first series comprising a secondary amino group, an amino group attached to a secondary carbon atom and a primary hydroxyl group or a group chosen from a second series comprising a hydroxyl group attached to a secondary carbon atom and a carboxy group, or a first compound containing at least a group chosen from the first series and
- 10 also contains at least a group chosen from the second series whereby optionally said first or second series furthermore comprise a double or triple bond, is contacted with an amount of carbonyl bislactam at a temperature below 150 °C and with the amount of carbonyl bislactam being at least equimolar to the number of primary amino groups or at least
- 15 equimolar to the number of groups chosen from the first series and with the molar amount of carbonyl bislactam being lower than the sum of the molar number of primary amino groups and groups chosen from the first or second series or lower than the sum of the molar number of groups chosen from the first series and chosen from the second series, as a result of which a first intermediate compound is formed which contains, besides at least one blocked isocyanate group, a free amino group, hydroxy group, carboxy group or a double or triple bond;
- 20 b. the first intermediate compound is contacted, at a temperature preferably below 150 °C, with an additive such that a link is established via the free amino, hydroxy or carboxy group or via a double or triple bond to form a second intermediate compound.
- 25 c. the second intermediate compound is contacted with a polymer having at least one free amino group or hydroxyl group at a temperature above the melting point of the polymer and at least above 150 °C, such that the blocked isocyanate group reacts with the free amino group or hydroxy
- 30 group of the polymer to form the functionalized polymer.
2. Process according to Claim 1 wherein the carbonylbislactam is carbonylbiscaprolactam.
3. Process according to Claim 1 or 2 wherein the polymer is chosen from the
- 35 series of polyamides, polyesters, copolyesters, polyethers, polyacrylates,

cellulose and hydroxy or amino functionalized polymers.

4. First intermediate compound comprising at least one blocked isocyanate group and a free amino, hydroxy or carboxy group, or a double or triple bond.
5. Process for the preparation of the compound of Claim 4, characterized in that the process comprises a step as mentioned under a. in Claim 1.
6. Second intermediate compound comprising an additive that is linked to the first intermediate compound in Claim 4 via the free amino, hydroxy or carboxy group, or a double or triple bond present in the first intermediate compound.
7. Second intermediate compound according to Claim 6 wherein the additive is chosen from the series of stabilizers, flame retardants, bactericides, fungicides, surfactants, anti-fouling agents, colouring agents, antistatic agents and lubricants.
8. Process for the preparation of the second intermediate compound of Claim 6 or 7, characterized in that the process comprises steps as mentioned under a. and b. in Claim 1.
9. Process for the preparation of a functionalized polymer by
  - a. reacting an additive comprising at least one amino group or a hydroxyl group with carbonylbis lactam at a temperature below 150 °C such that a link is established via the amino group or hydroxyl group of the additive, thereby forming an intermediate product A,
  - b. contacting the intermediate product A with a polymer having at least one free amino group or hydroxyl group at a temperature above the melting point of the polymer and at least above 150 °C, such that the blocked isocyanate group reacts with the free amino group or hydroxy group of the polymer to form a functionalized polymer.
10. Intermediate product A comprising an additive provided with a lactam blocked isocyanate group.
11. Process for the preparation of an intermediate product A according to Claim 10, characterized in that the process comprises a step as mentioned under a. in Claim 9.
12. Functionalized polymer obtainable according to the process of any one of Claims 1-3 or 9.
13. Polymer composition containing a functionalized polymer according to Claim 12.
14. Shaped article comprising the polymer composition of claim 13.

15. Shaped article according to claim 14 wherein the shaped article is a film, fibre, monofilament or strapping.
16. Coating composition comprising the second intermediate compound of any one of claims 6-7.
- 5 17. Substrate comprising a coating based on the coating composition according to claim 15.